Suisun Marsh Managed Wetlands

By-

Steven Chappell

Executive Director

Suisun Resource Conservation District

Goals of Suisun Marsh Wetland Management

- Provide Wintering Waterfowl Habitat
- Provide Habitat for Resident Breeding Waterfowl and Ground Nesting Birds
  - Upland nesting habitat
  - Permanent ponds and brood rearing habitat
- Sustain Hunting Opportunities and Experience
- Maintain and Enhance Wetland Conditions for Resident and Migratory Species
- Habitat Stewardship Protects Open Space and Wetland Habitats from Development

Constraints to Managed Wetland Operations

- Physical Constraints
- Environmental Constraints
- Regulatory Constraints
- Fiscal Constraints

Physical Constraints

- Wetland Soil Types
- Wetland Elevation and Topography
- Water Control Infrastructure
  - Number, size & invert of water control structures
  - Pumps
  - Water conveyance system (Ditches, culverts, flashboard risers, etc.)
  - Fish screens

Environmental Constraints

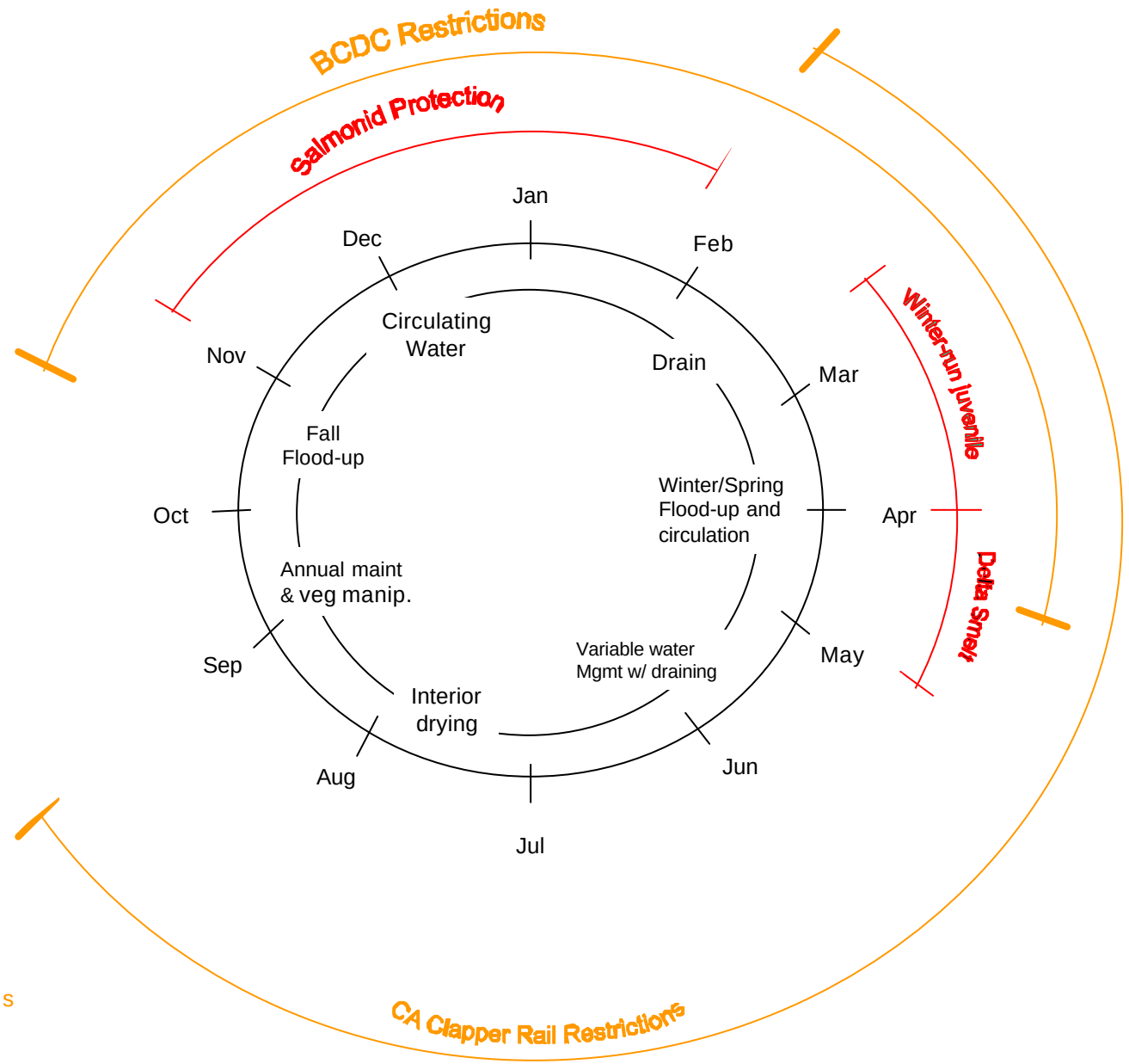
- Properties Geographic Location in Relation to Salinity Gradients and Creek Inflow (i.e. Applied Water Salinity)
- Yearly Climatic Conditions
  - Rain fall
  - Temperature
  - Seasonal Variability
- Tidal Variation at Diversion and Drainage Location

Regulatory Constraints

- **Suisun Marsh Preservation Act – 1977 (Solano County / BCDC)**
- **U.S. Army Corps of Engineers – (Sections 401Water Quality Certification and 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act)**
- **Endangered Species Act**
  - **Diversion restrictions for fisheries protection (fish screens)**
  - **Seasonal abstinence from levee maintenance**
- **Air Quality Control Board**
  - **Burn restrictions**
- **Solano County Mosquito Abatement**
  - **Flood date considerations**

Draft Conceptual Model

Suisun Marsh Managed Wetlands Existing Management Cycle

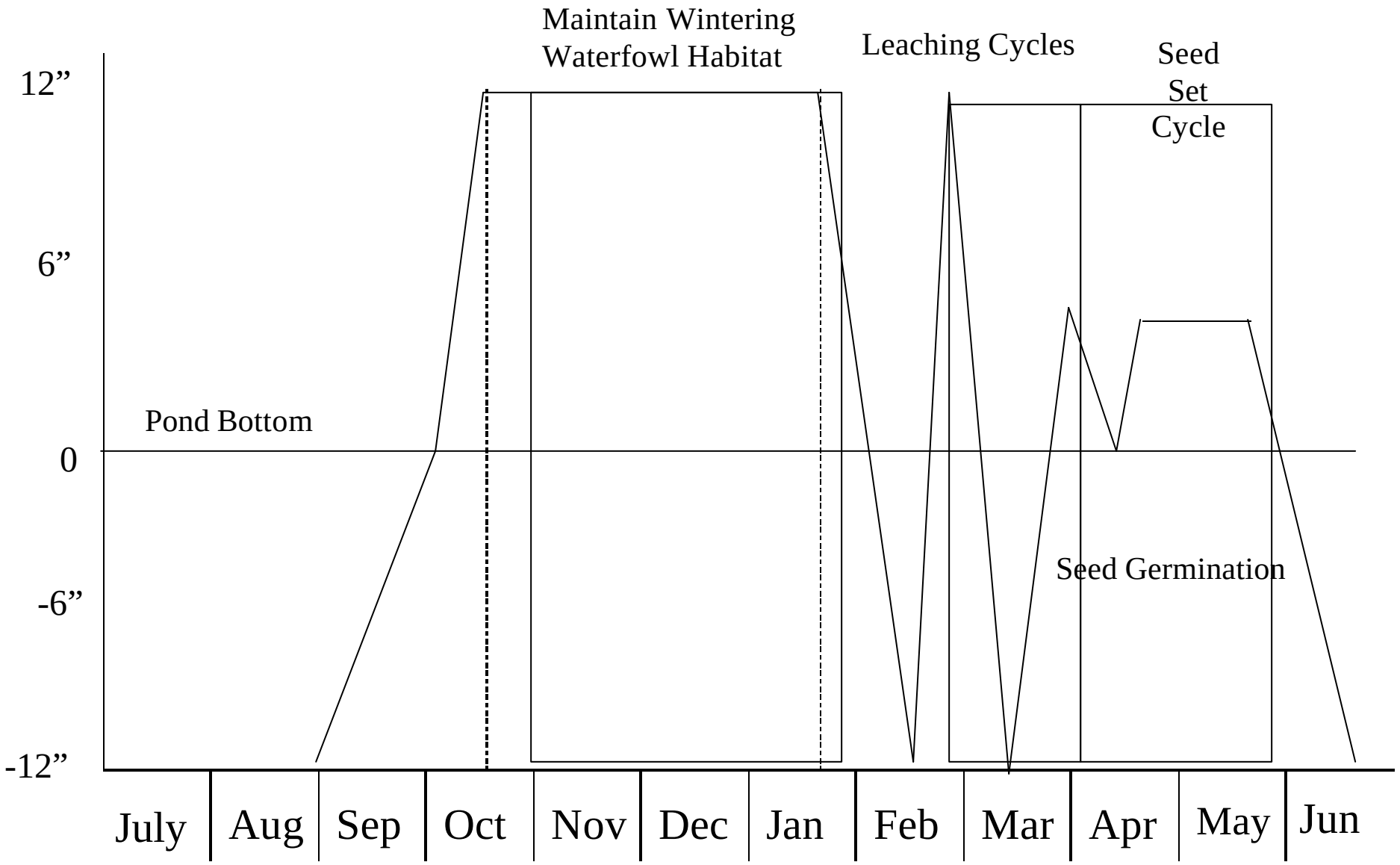


Flooding Regimes

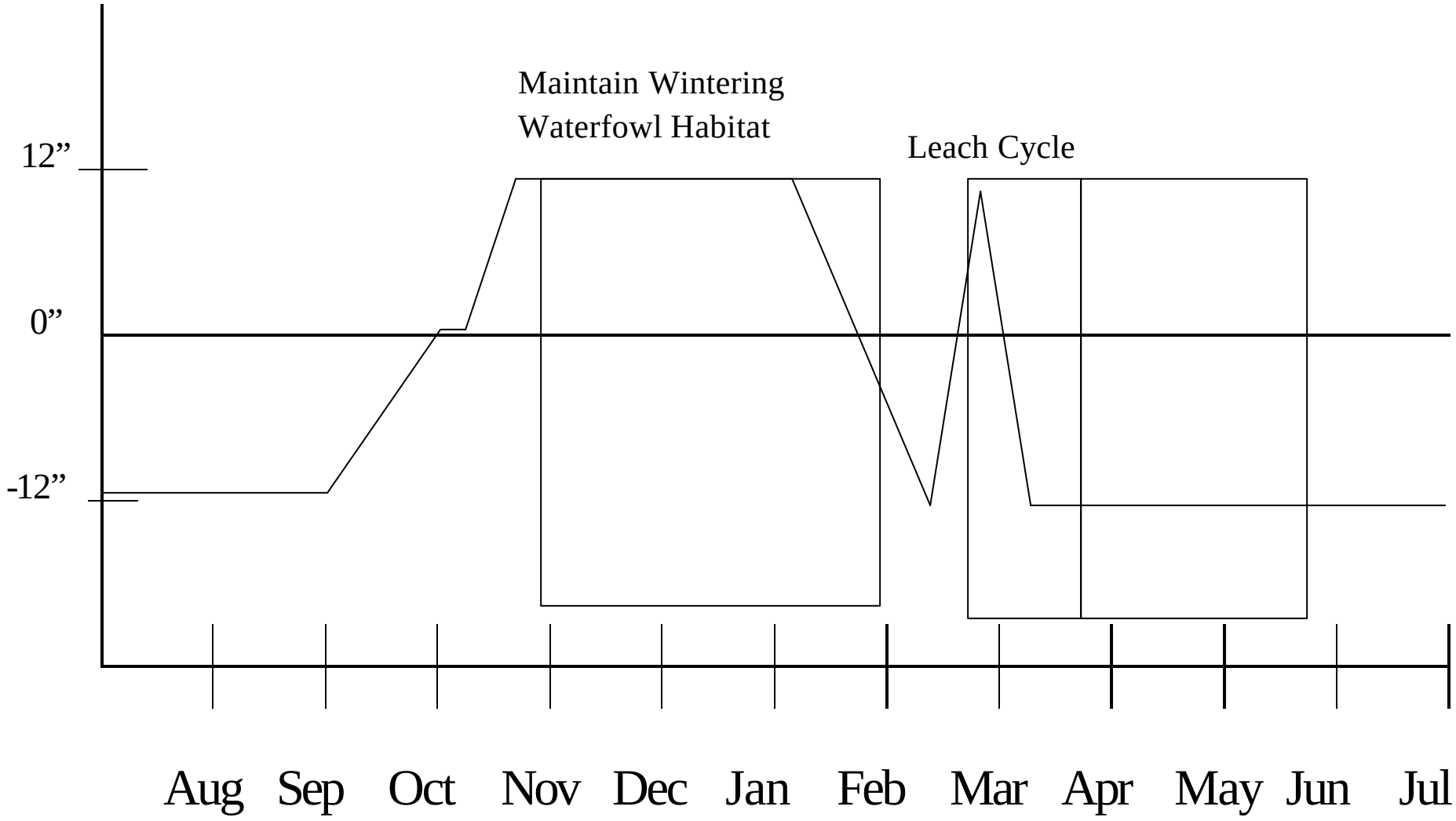
- Long Hydroperiod
  - Pond(s) inundated for more than 6 months

- Short Hydroperiod
  - Pond(s) inundated for less than 6 months

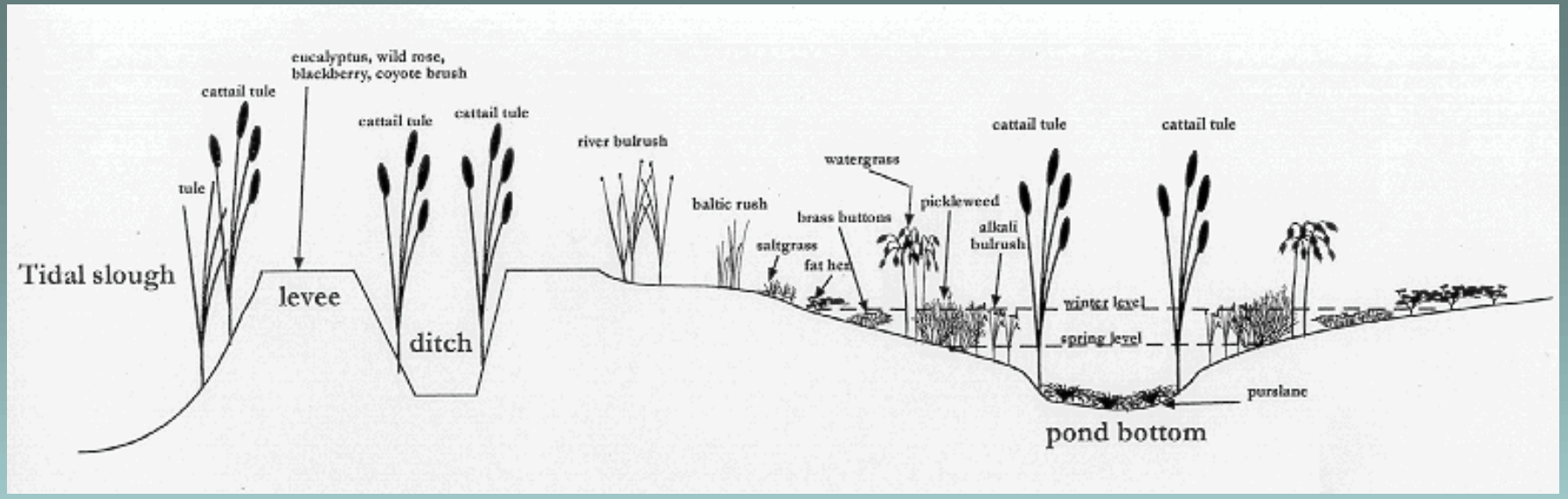
Long Hydroperiod
Water Management Schedule

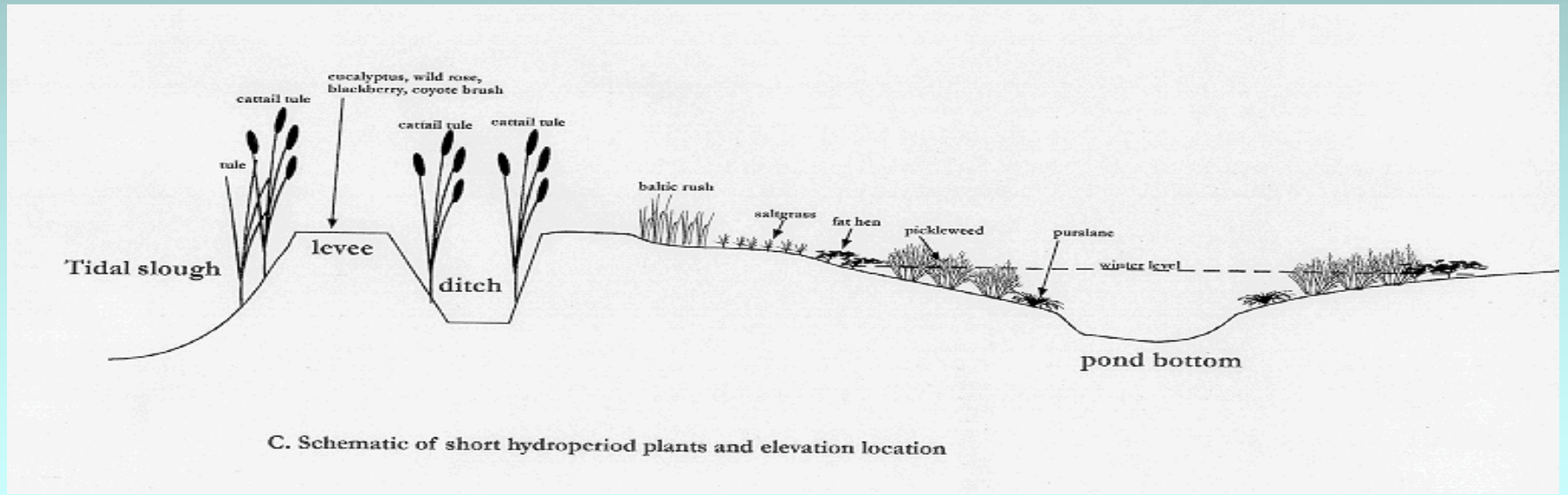


Short Hydroperiod
Water Management Schedule



Long Hydroperiod vs. Short Hydroperiod





C. Schematic of short hydroperiod plants and elevation location

Types of Maintenance Activities

- Ditch work
  - Cleaning
  - Constructing new interior ditches
- Levee repair
  - Coring
  - Topping
- Pond bottom grading
- Water control structure repair
  - Pipe replacement
  - Repair/replacement of associated structures (gates, risers, couplers, etc.)
- Discing/mowing

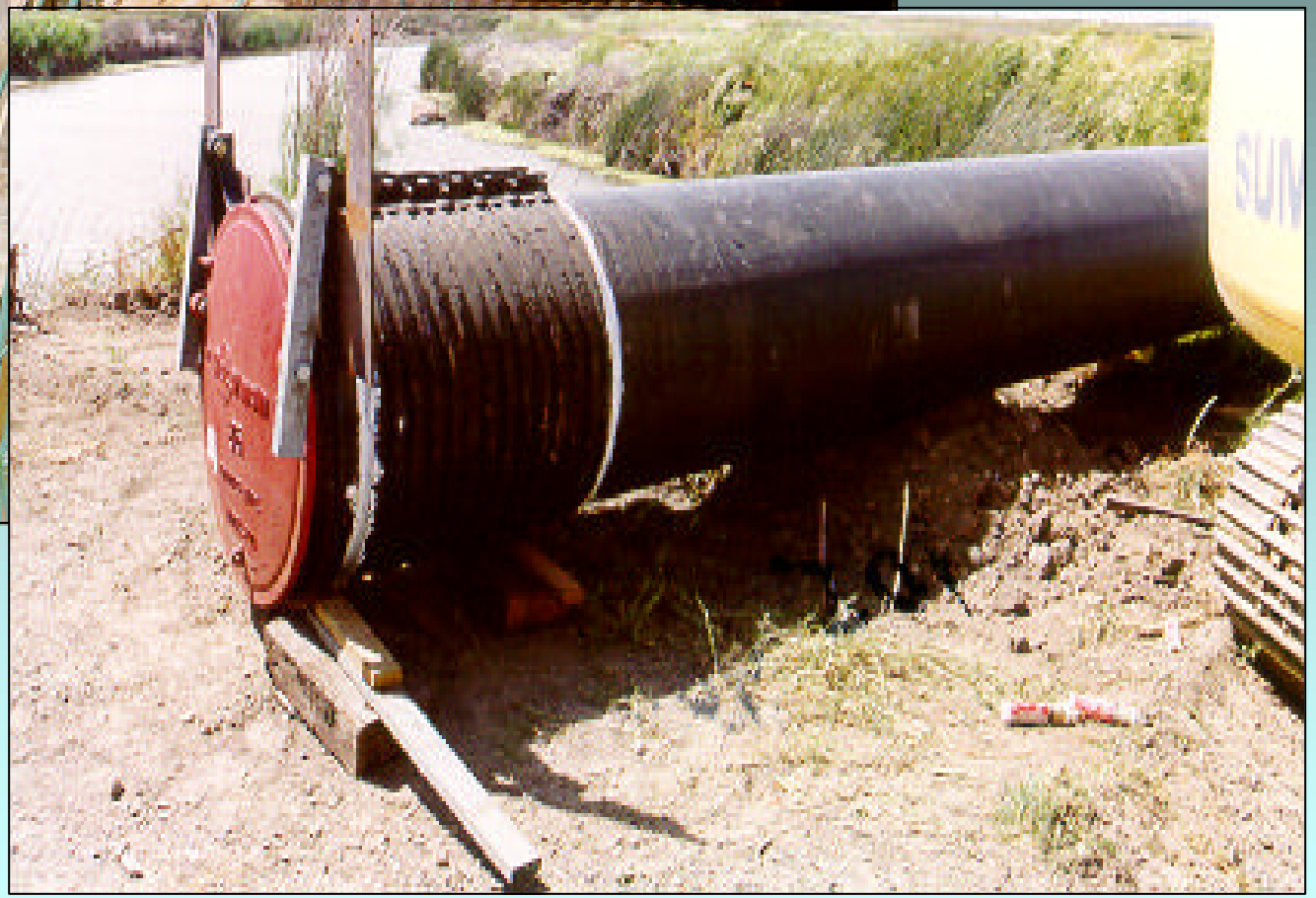
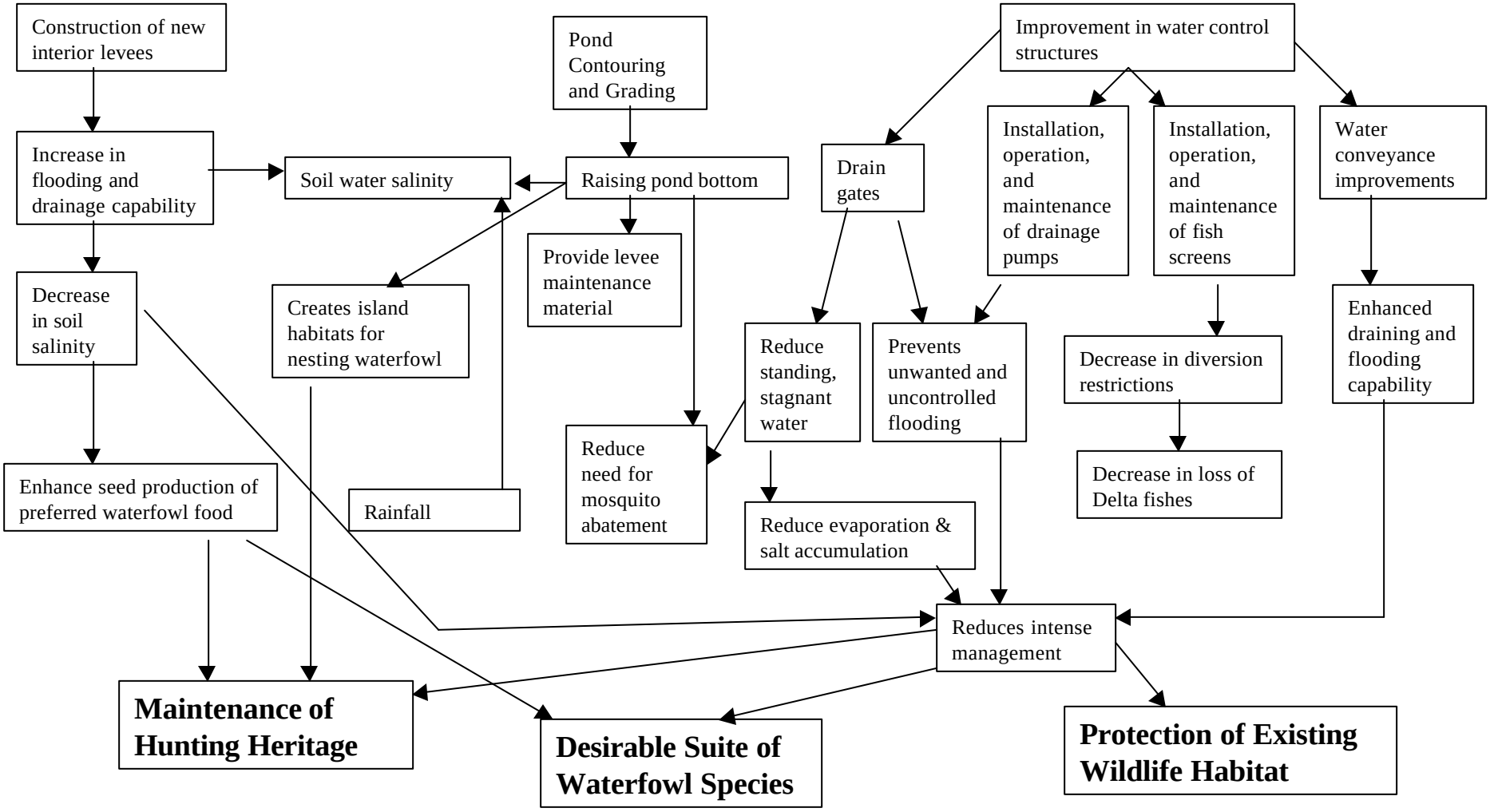


Diagram Illustrating a Conceptual Model for Managed Seasonal Wetland Enhancement




Levee Program Planning Process
Tidal Marsh Recovery Needs
Bay-Delta Program Goals
Regional General Permit Renewal
Suisun Marsh Preservation Agreement Amendment
Development of Habitat Management, Preservation, and Restoration Plan for Suisun Marsh
Allow Amendments To the SMPA
Stable Regulatory Climate
Development of Levee Program Strategy
Facilitate Investments in Suisun for Beneficial Uses
Agency Coordination and Collaboration & Stakeholder Involvement
Managed Wetlands Enhancement and Tidal Wetland Restoration

Areas for Future Study

- **Identify Opportunities for New Marsh Management Strategies**
  - **Enhancement of existing wetland values and functions**
  - **Compatibility with ESA/native species recovery**
- **Evaluation of Existing Managed Wetland Waterfowl Food Resource Production and Availability**
- **Comparisons of Managed Wetlands Resource Values to Tidal Wetlands and Tidally Restored Areas**
- **Improve understanding of soil chemistry, leaching, and the acid sulfate soil reactions**

Thank You's

- Julie Niceswanger DFG
- Gina Von Klompenberg DFG
- Laurie Barthman-Thompson DFG
- Dennis Becker DFG
- Laurie Briden DFG
- Sarah Estrella DFG
- Paul Garrison DFG
- Kristin Bruce SRCD
- Craig Haffner SRCD
- Bruce Wickland SRCD
- Stuart Siegel Wetland and Water Resources
- Zach Hymanson CBDA